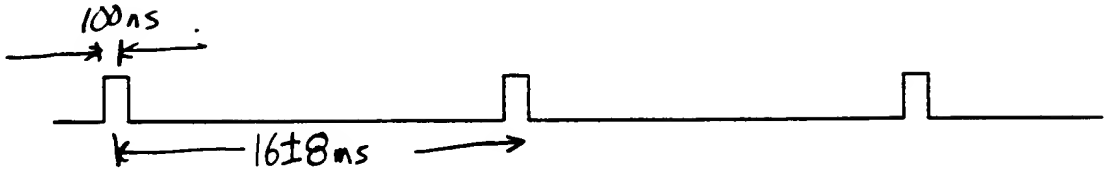
FIG. 1



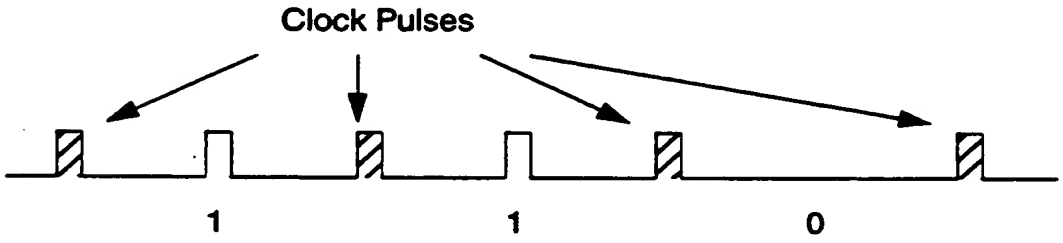


FIG. 2

25-

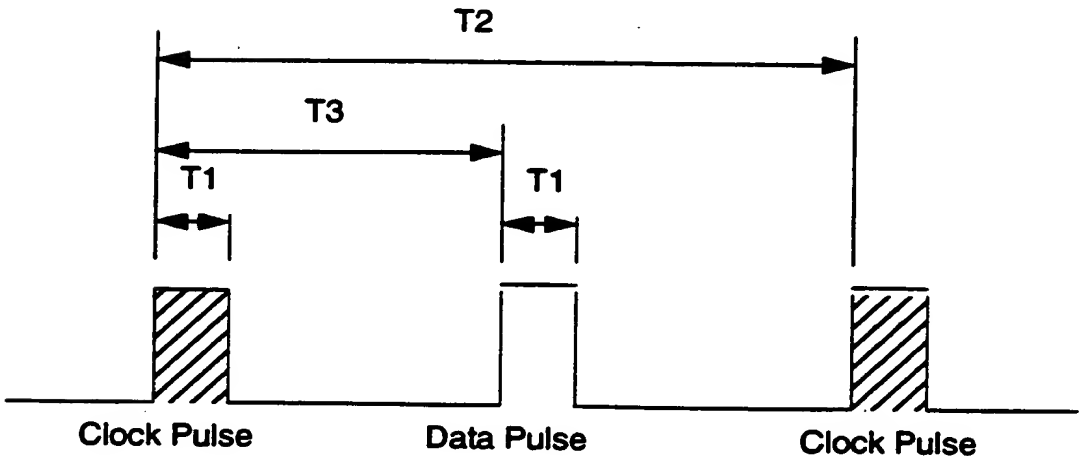


FIG. 3

FIG. 4

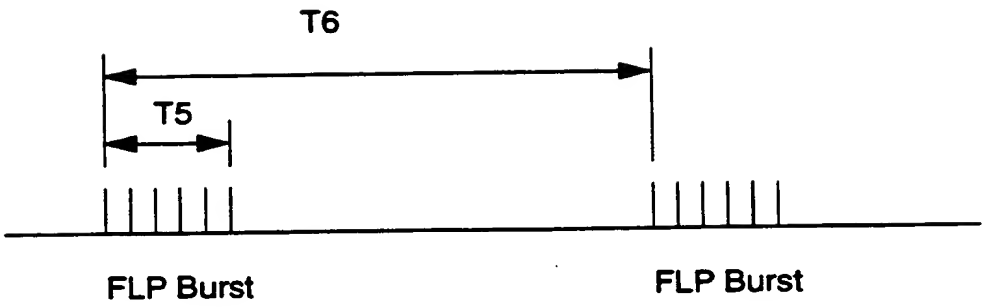


FIG. 5

#	Parameter	Min	Typ	Max	units
T1	Clock / Data Pulse Width		100		ns
T2	Clock Pulse to Clock Pulse		125		µs
T3	Clock Pulse to Data Pulse (Data = 1)		62.5		µs
T4	Pulses in a Burst	17		33	#
T5	Burst Width		2		ms
T6	Burst to Burst	8	16	24	ms

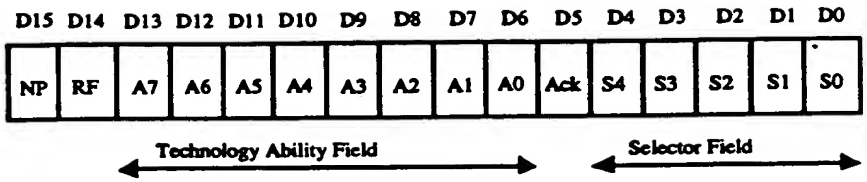


FIG. 6

D10	D9	D8	D7	D6	Description
0	0	0	0	1	10BASE-T
0	0	0	1	0	10BASE-T Full Duplex
0	0	1	0	0	100BASE-TX
0	1	0	0	0	100BASE-TX Full Duplex
1	0	0	0	0	100BASE-T4

FIG. 7

FIG. 8

D10	D9	D8	D7	D6	Description
0	0	0	1	1	Regular and Full Duplex 10BASE-T
1	0	1	0	1	10BASE-T, 100BASE-TX, and 100BASE-T4 all supported in normal configurations.
0	0	1	0	1	10BASE-T and 100BASE-TX configurations both supported.
1	1	1	0	0	100BASE-TX, 100BASE-T4, 100BASE-TX Full Duplex supported.

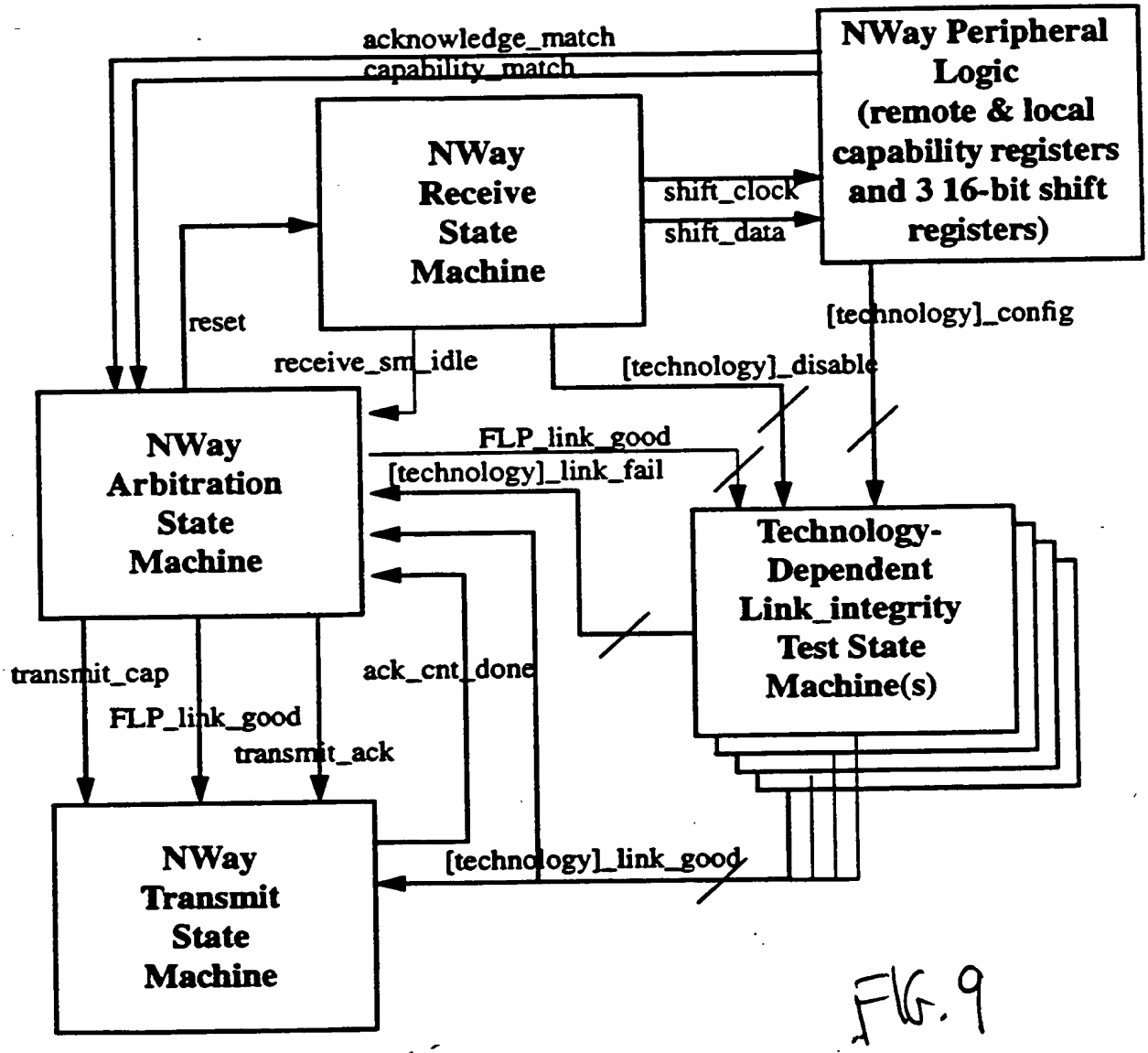

acknowledge_match
capability_match
NWay Peripheral Logic (remote & local capability registers and 3 16-bit shift registers)
NWay Receive State Machine
shift_clock
shift_data
reset
[technology]_config
receive_sm_idle
[technology]_disable
NWay Arbitration State Machine
FLP_link_good
[technology]_link_fail
Technology-Dependent Link_integrity Test State Machine(s)
transmit_cap
ack_cnt_done
FLP_link_good
transmit_ack
NWay Transmit State Machine
[technology]_link_good

FIG. 9

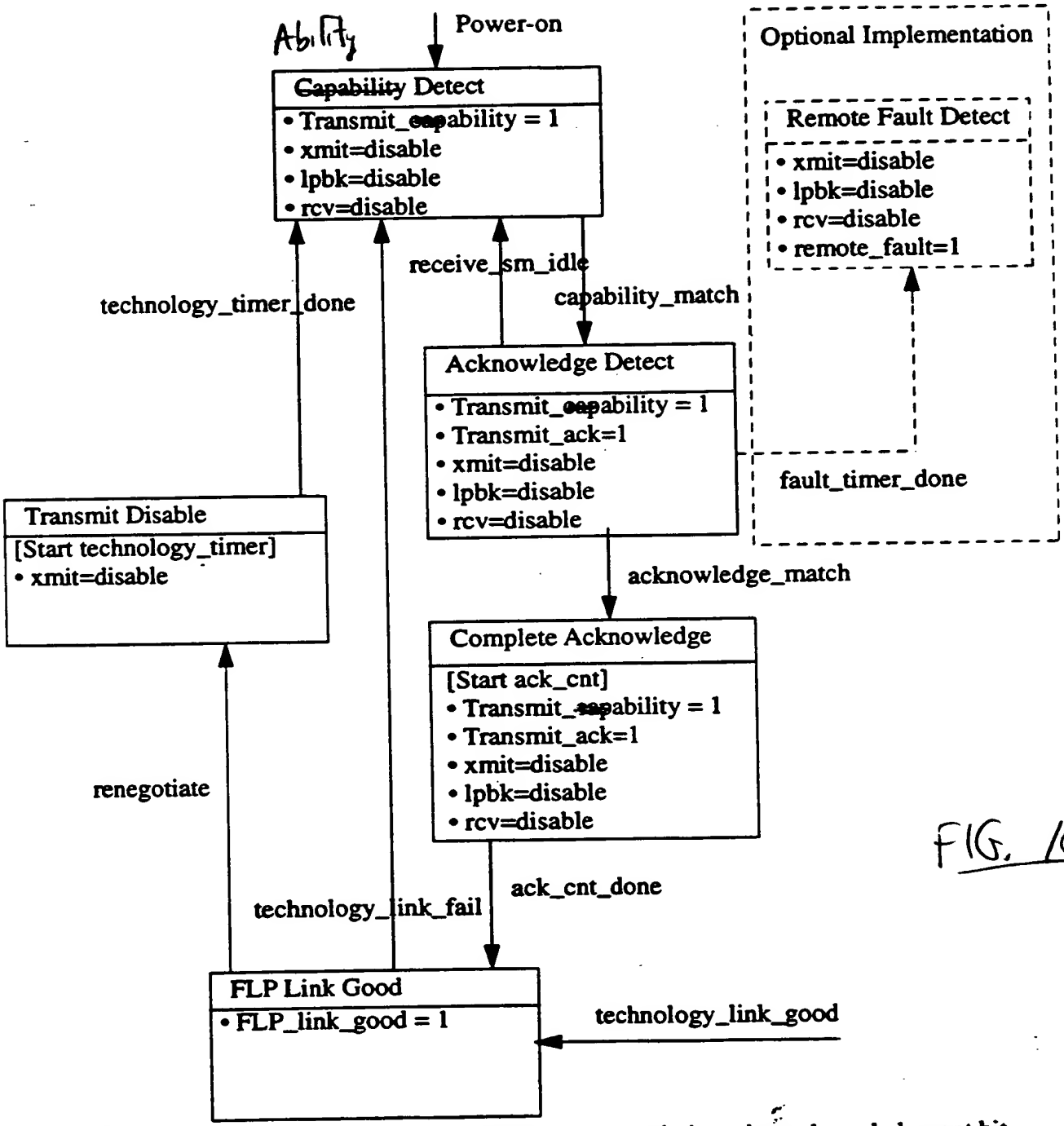


FIG. 10

Note: • Capability_match is 3 consecutive data pattern match, ignoring acknowledgment bit.
• Acknowledge_match is 3 consecutive data patterns having acknowledgment bit set.
• ack_cnt_done is from FLP Transmit SM to indicate completion of sending a minimum of 4-16 acknowledge patterns.
• optional remote sensing capability, refer to Management support section

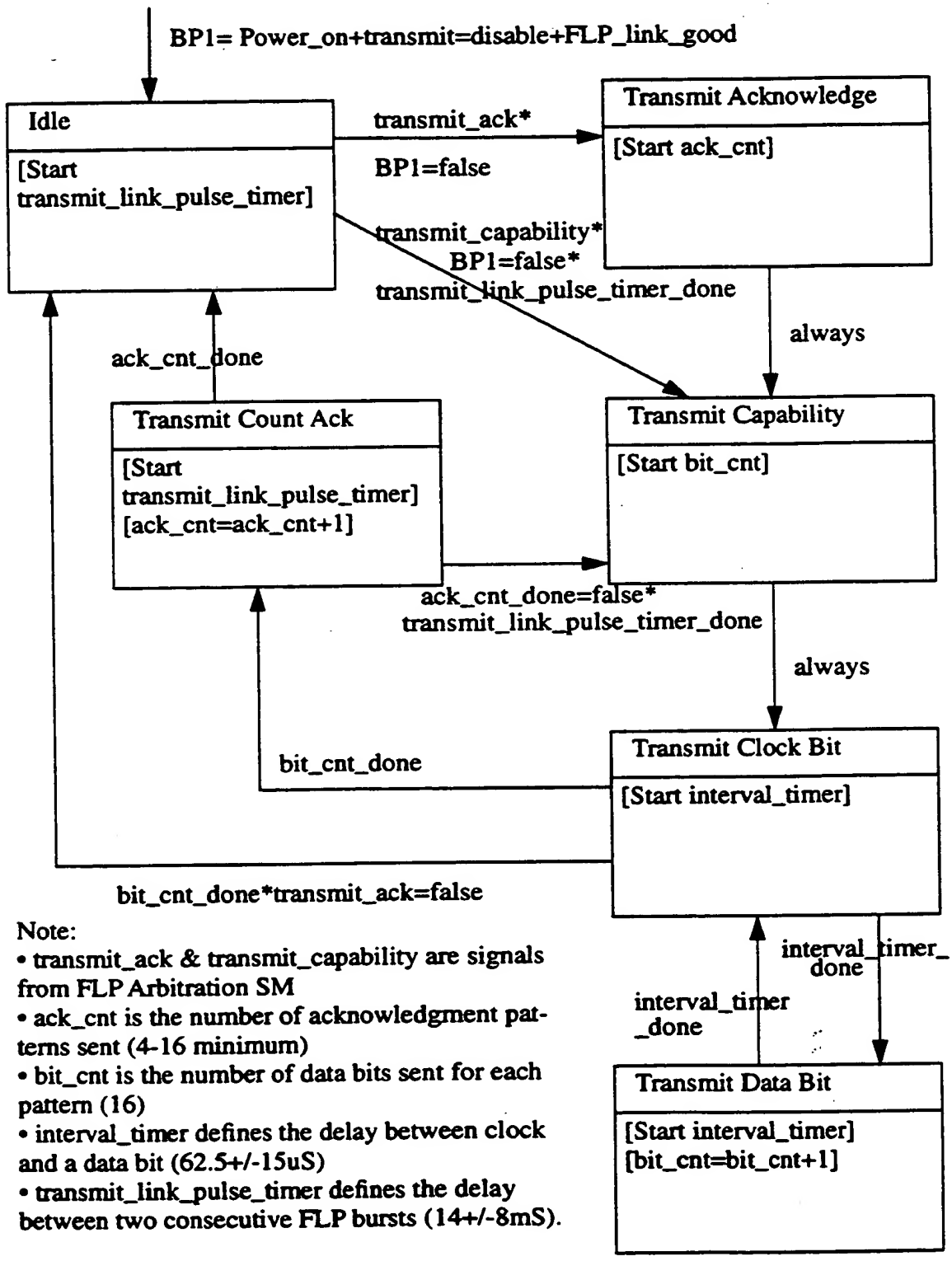


FIG. 11

Note:
- transmit_ack & transmit_capability are signals from FLP Arbitration SM
- ack_cnt is the number of acknowledgment patterns sent (4-16 minimum)
- bit_cnt is the number of data bits sent for each pattern (16)
- interval_timer defines the delay between clock and a data bit (62.5+/-15uS)
- transmit_link_pulse_timer defines the delay between two consecutive FLP bursts (14+/-8mS).

FIG. 12

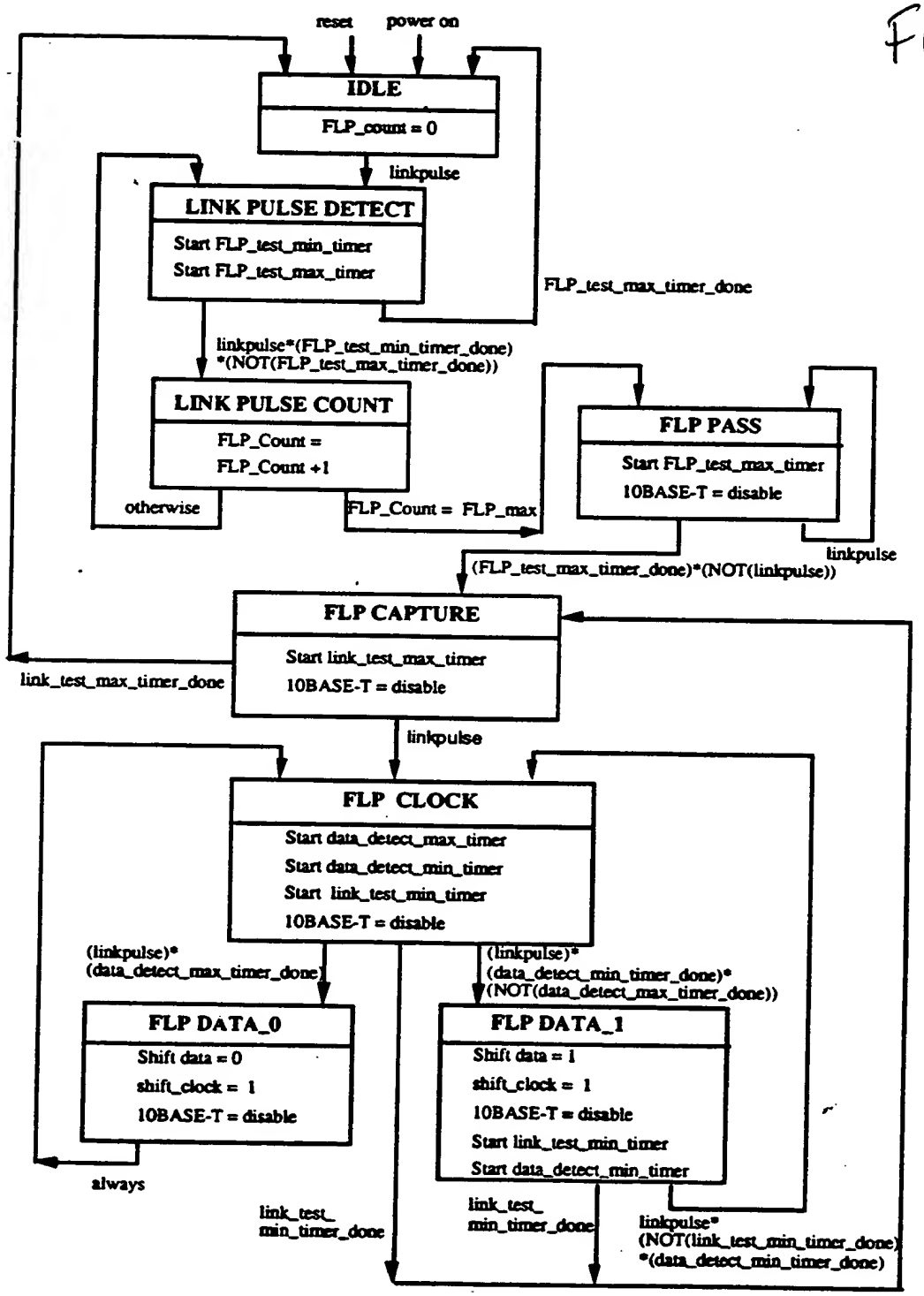

reset
power on
IDLE
FLP_count = 0
linkpulse
LINK PULSE DETECT
Start FLP_test_min_timer
Start FLP_test_max_timer
FLP_test_max_timer_done
linkpulse*(FLP_test_min_timer_done)
*(NOT(FLP_test_max_timer_done))
LINK PULSE COUNT
FLP_Count =
FLP_Count +1
otherwise
FLP_Count = FLP_max
FLP PASS
Start FLP_test_max_timer
10BASE-T = disable
linkpulse
(FLP_test_max_timer_done)*(NOT(linkpulse))
FLP CAPTURE
Start link_test_max_timer
10BASE-T = disable
link_test_max_timer_done
linkpulse
FLP CLOCK
Start data_detect_max_timer
Start data_detect_min_timer
Start link_test_min_timer
10BASE-T = disable
(linkpulse)*
(data_detect_max_timer_done)
(linkpulse)*
(data_detect_min_timer_done)*
(NOT(data_detect_max_timer_done))
FLP DATA_0
Shift data = 0
shift_clock = 1
10BASE-T = disable
always
FLP DATA_1
Shift data = 1
shift_clock = 1
10BASE-T = disable
Start link_test_min_timer
Start data_detect_min_timer
link_test_
min_timer_done
link_test_
min_timer_done
linkpulse*
(NOT(link_test_min_timer_done)
*(data_detect_min_timer_done)

FIG.13

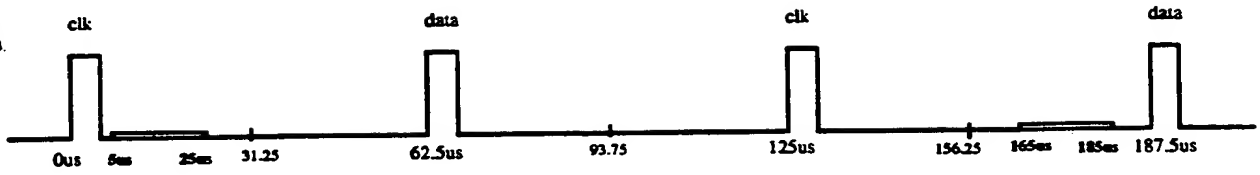


FIG.14

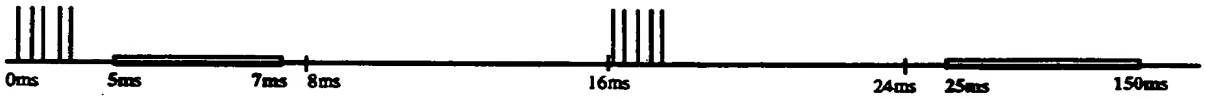
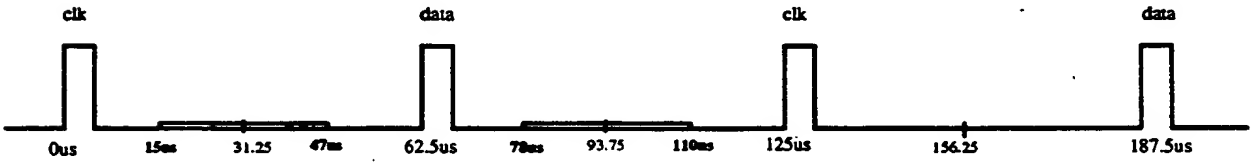


FIG.15



Parameter	Min	Typ	Max	units
FLP_test_min_timer	5		25	µs
FLP_test_max_timer	165		185	µs
Link_test_min_timer	5		7	ms
Link_test_max_timer	50		150	ms
Data_detect_min_timer	15		47	µs
Data_detect_max_timer	78		110	µs

FIG. 16

FIG.17

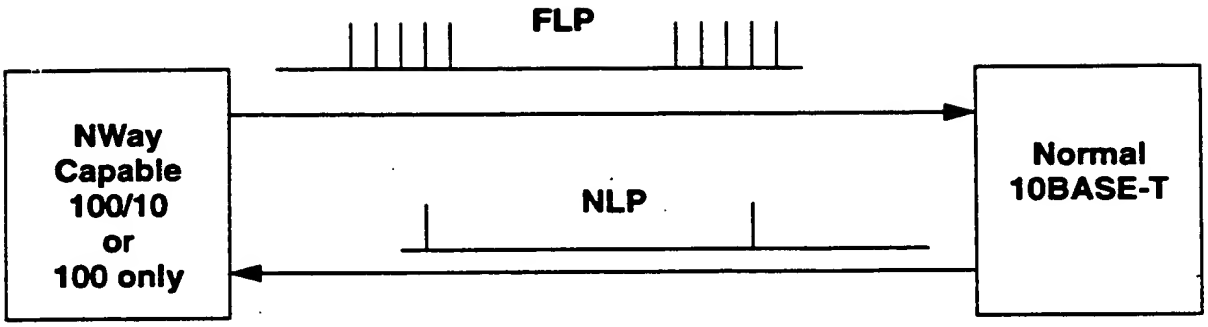


FIG.18

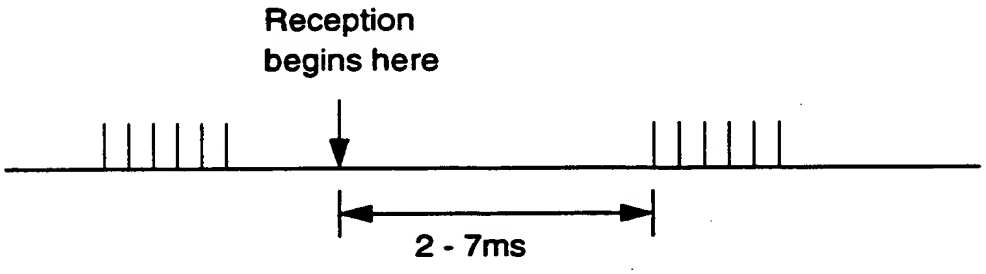


FIG.19

FIG. 20

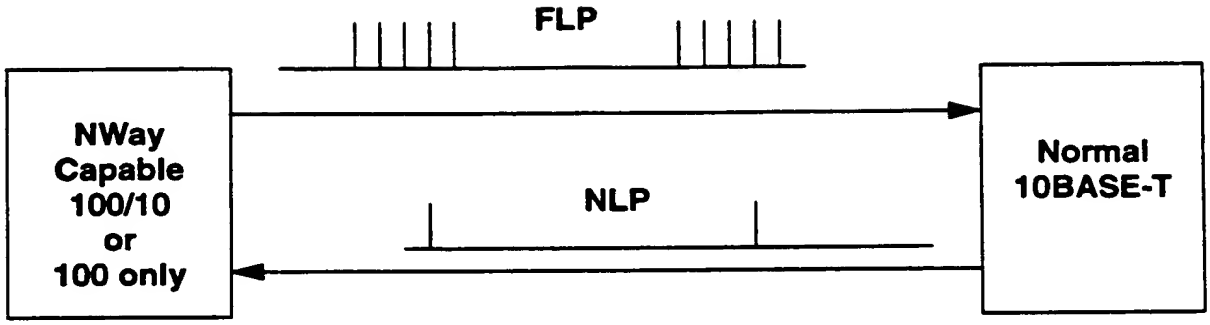


FIG. 21

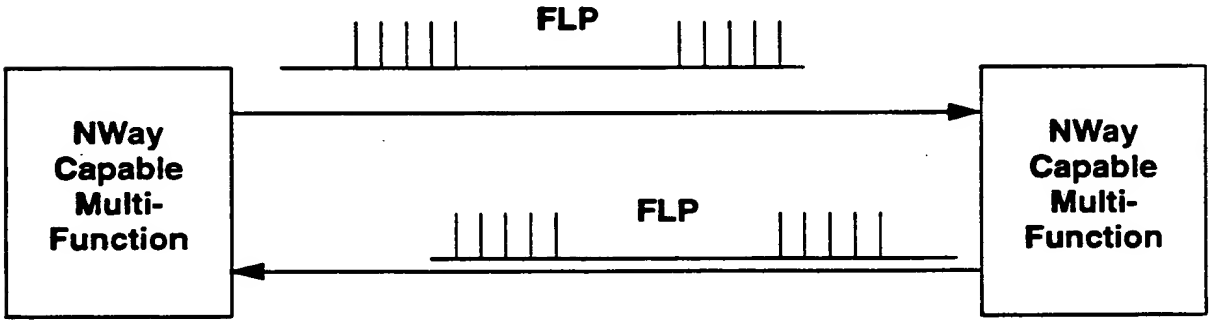


FIG. 22

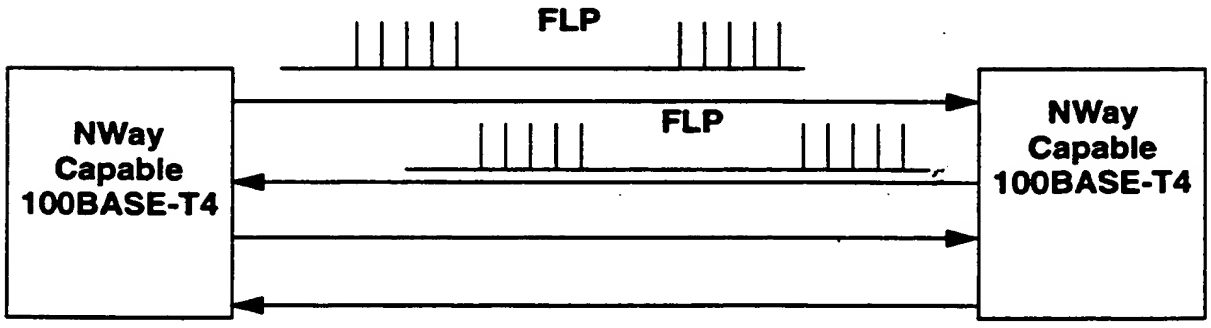
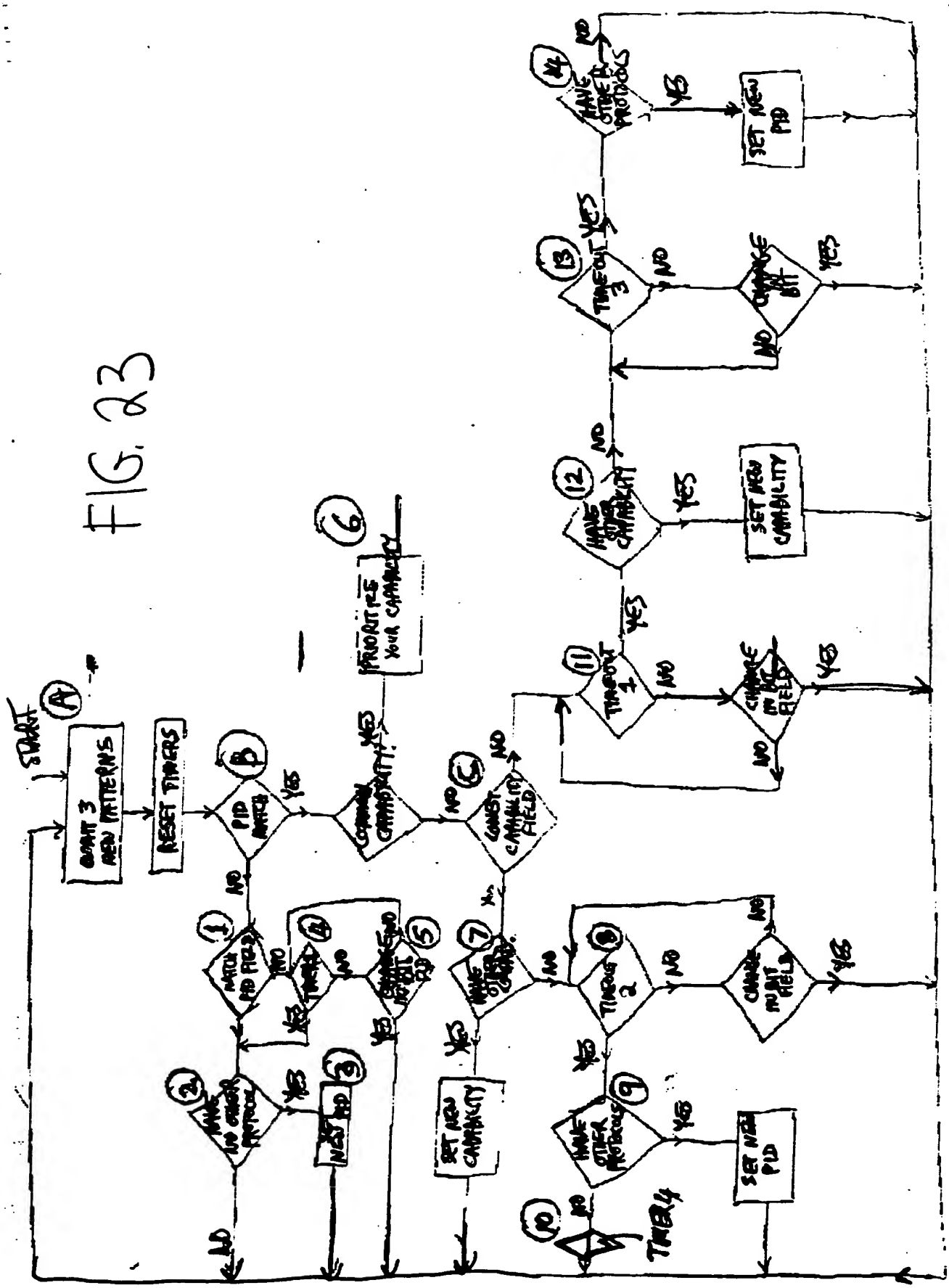
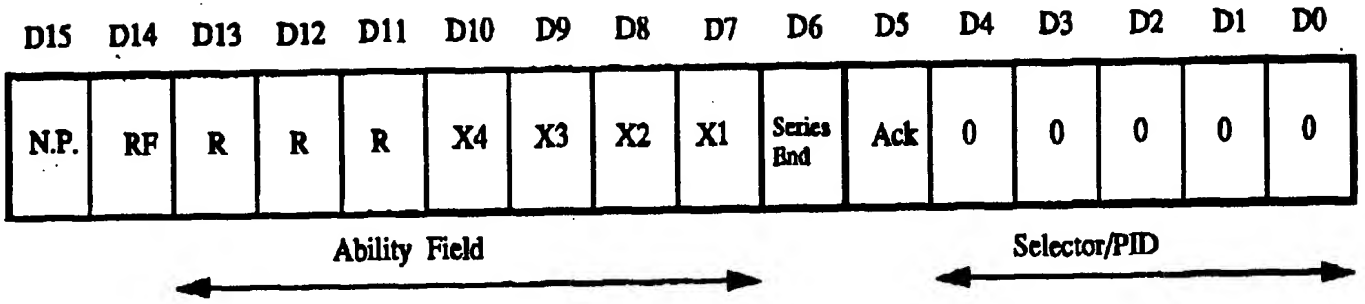


FIG. 23


START
A
GRANT 3 NEW PATTERNS
RESET TIMERS
B
PID MATCH
YES
NO
COMMAND CAPABILITY?
YES
6
PRIORITIZE YOUR CAPABILITY
NO
C
LOWEST CAPABILITY FIELD
1
MATCH PID FIELD
NO
4
TIMEOUT
NO
YES
5
CHANGE PID FIELD
YES
3
MORE PID MATCHES
YES
NO
8
NEXT PID
7
MORE CAPABILITY
NO
YES
SET NEW CAPABILITY
9
TIMEOUT 2
NO
YES
CHANGE PID FIELD
YES
NO
10
MORE ATTACK PROTOCOLS
YES
SET NEW PID
NO
TIMEOUT
11
TIMEOUT 1
NO
YES
CHANGE CAPABILITY FIELD
YES
NO
12
MORE OTHER CAPABILITY
NO
YES
SET NEW CAPABILITY
13
TIMEOUT
NO
YES
CHANGE BIT
YES
NO
14
MORE OTHER PROTOCOLS
NO
YES
SET NEW PID

Data Word Encoding (Multi-Protocol Negotiation)



Ability Field (D7 to D13)

D10:D7 Number of Protocols
D13:D11 Reserved

Other Bits in the Field

D5 Acknowledge Bit
D6 Series End Bit
D14 Remote Fault
D15 Next Page (N.P.)

Protocol Discriminator (D4:D0)
(Selector or PID)

00000 Multi-Protocol Negotiation

00001 CSMA/CD Compatible
(D0 = 1; D4 - D1 = 0;

FIG. 24

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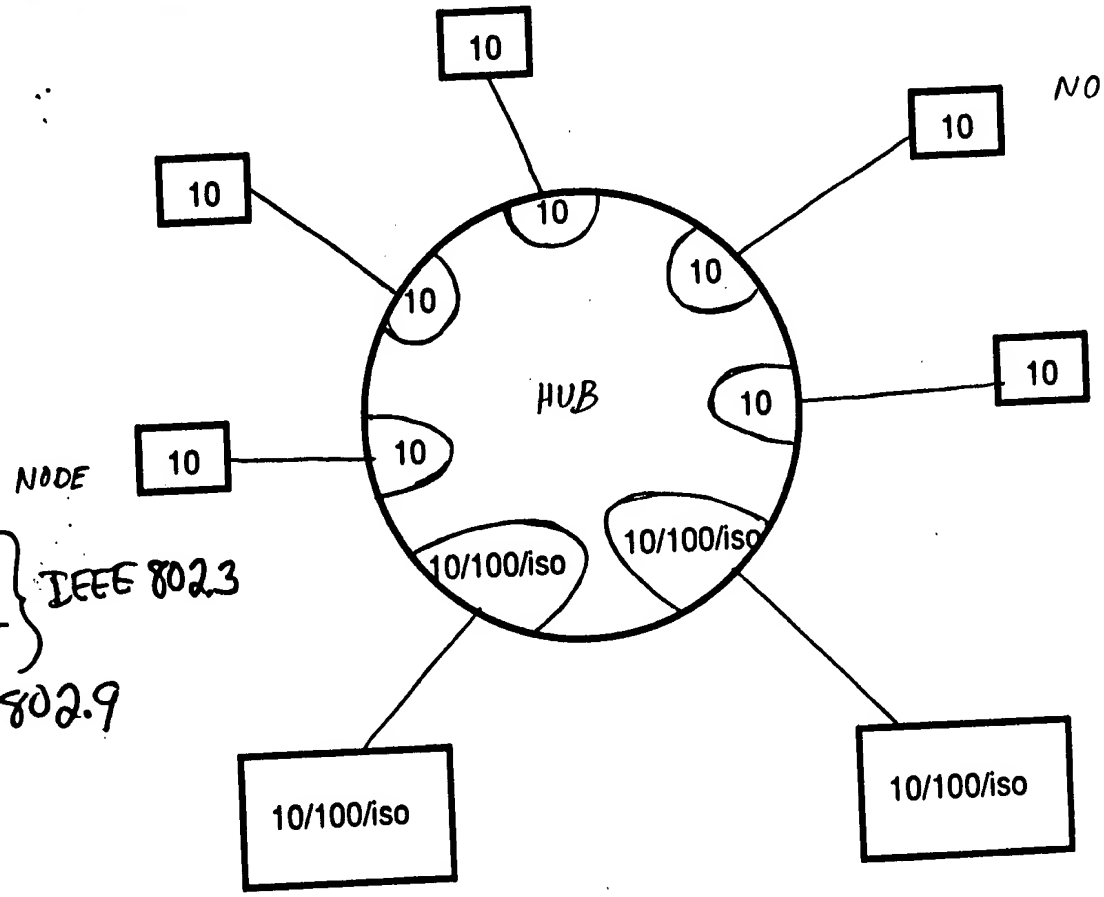
Example of a small network



10 = 10 BASET } IEEE 802.3
100 = 100 BASET }
iso = IEEE 802.9

FIG. 25

08/262769